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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,781	04/10/2001	Tsung-Yuan Hsu	B-3916 617818-6	1039

7590

09/26/2002

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EXAMINER

INZIRILLO, GIOACCHINO

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/829,781

Applicant(s)

HSU ET AL.

Examiner

Gioacchino Inzirillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 19-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 19-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restrictions***

The current Examiner of Record hereby withdraws the Election/Restriction set forth in the last Official Office Action by the previous Examiner of Record. Upon careful consideration, it has been determined by the present Examiner of Record that the neither of the two tests for distinction, which were outlined in the last Office Action, can be met.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yao et al. US 5,929,430 (herein after known as Yao) in view of Yao et al. US 5,723,856 (herein after known as '856) and Stanley US 5,084,779 (herein after known as Stanley).

Regarding claims 1 – 10 and 19 – 28, the instant invention is deemed to be a combination of well known elements. Fig. 1 of Yao teaches a laser system with self-injection locking comprising a single frequency laser 102. Part of the emitted light returns to the laser 102 an optical feedback loop formed by paths 106 and 109 and by 108, while part is coupled out through the coupler 110. According to the specification, column 4 lines 31 – 36, the optical feedback loop has at least one device to alter or modulate the optical signal that is feedback to the laser 102. An example of a device as given by Yao is an electrically controlled laser gain medium. (Note: Although the Yao passage refers to the optical feedback loop as 104, according to Fig. 1 labeled as 108, and will be referred to as such by the Examiner) Yao fails to teach a Mach-Zehnder (M-Z) modulator.

However, '856 teaches a M-Z modulator, see Fig. 1A reference numeral 12. As can be seen in this figure the M-Z modulator provides a port for a laser output 32, an input from a laser 40, and a port 14 by which an optical feedback signal may be provided. The M-Z modulator is driven by a RF source; the figure shows the RF input port 24. It is well known in the art that a M-Z modulator can separate wavelengths (in effect working as a filter) and create sidebands.

Substituting the M-Z modulator of '856 into Yao would eliminate in Yao the optical coupler 110 and the path 106, while maintaining an output coupling port and the electrical and optical feedback loops. However, the fact that the M-Z modulator can be adjusted to feedback a particular wavelength means the device has been improved as well as simplified because now the laser 102 of Yao is not being injection locked by another laser as was described above but the laser 102 of Yao is self-injection locking. Therefore, it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to modify Yao with the M-Z modulator as taught by '856 for the simplification and improvement of his invention.

Furthermore, a change of modulators would be obvious to one of ordinary skill since modulators available are well known. The same holds true for using distributed feedback laser source, a fiber Bragg grating filter, and a fiber optic cable.

Yao in view of '856 teaches the invention as outlined in the rejection above, but fails to teach an optical filter coupled to an output of a modulator for suppressing a sideband. However, an example of such well known filters is taught in the Stanley reference. Stanley describes the filter 19 of Fig. 3 in column 4 lines 53 – 55; in this passage he teaches that the filter 19 is a narrow band filter, and is used to fine tune the wavelength selection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yao in view of '856 with the filter as taught by Stanley for a fine tuning of the wavelength selection, that would result in narrow wavelength selection being feedback to the laser 102. The result of this would be a single frequency laser output.

Regarding claims 11 – 18, the method is inherent <sup>as product by process</sup> in the combination. These claims would have been obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gioacchino Inzirillo whose telephone number is 703-305-1967. The examiner can normally be reached on M-F 8:30AM to 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

***TC2800 RightFAX Telephone Numbers***

TC2800 Official Before-Final RightFAX - (703) 872-9318

TC2800 Official After-Final RightFAX - (703) 872-9319

TC2800 Customer Service RightFAX - (703) 872-9317

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Gioacchino Inzirillo

Examiner

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*G.I.*  
September 19, 2002



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